

Overview

- The challenge
- ZEV program history & technology story
- The 2003 regulation
- ARB's role in bringing ZEVs to commercialization
- Section 177 States
- Next steps
- **Conclusion**

- **ZEV program has helped bring about remarkable advances in vehicle technology**
 - **Extremely clean vehicles in showrooms today**
 - **Other technologies emerging**

Technology Status-- PZEV

BMW - 325i

Ford - Focus

Honda - Accord (LX, EX)

Hyundai - Elantra

Mazda - 3

Mitsubishi - Galant

Nissan - Sentra, Altima 2.5

Subaru - Legacy

Toyota - Camry, Prius

Volkswagen - Jetta

Volvo - S60, V70

~140,000 sold in 2003



Technology Status--AT PZEV



- CNG vehicles in commercial production
- Three HEVs on market, others announced
 - 2004 Prius AT PZEV, future versions from other manufacturers expected to qualify
- Hydrogen ICE vehicles demonstrated
- Plug in hybrid vehicles being studied

Hybrid Electric Vehicles

“ZEV enabling” technology

- electric drive train
- batteries
- power management



Neighborhood Electric Vehicles

- Over 15,000 placed in response to regulation
- DaimlerChrysler-GreenCar Recent Study Findings
 - NEV users in California account for 26.46 million one-way trips and 12.58 million zero-emission miles traveled per year
 - 64.7% replaced personal or company-provided internal combustion engine vehicles.



Full-Sized Battery EVs



- Over 2,500 placed
- Cost and range issues have shifted focus:
 - smaller vehicles
 - fuel cells

Grid Hybrid Technology

- Zero emission vehicle miles traveled
- Transition technology to pure ZEVs
- Criteria pollutant benefits
- Increased marketability



Hydrogen Internal Combustion Engine Vehicles

- Potential for extremely low oxides of nitrogen emissions
- Aid in transition to hydrogen fuel cells
- Limited technology development efforts underway



Fuel Cell Vehicles

- Promising technology
- Significant cost, manufacturing and performance challenges
- Significant development efforts underway



- **ARB remains fully committed to zero emission goal!**

